

SB761
U7I54
1982

United States
Department of
Agriculture

Forest
Service

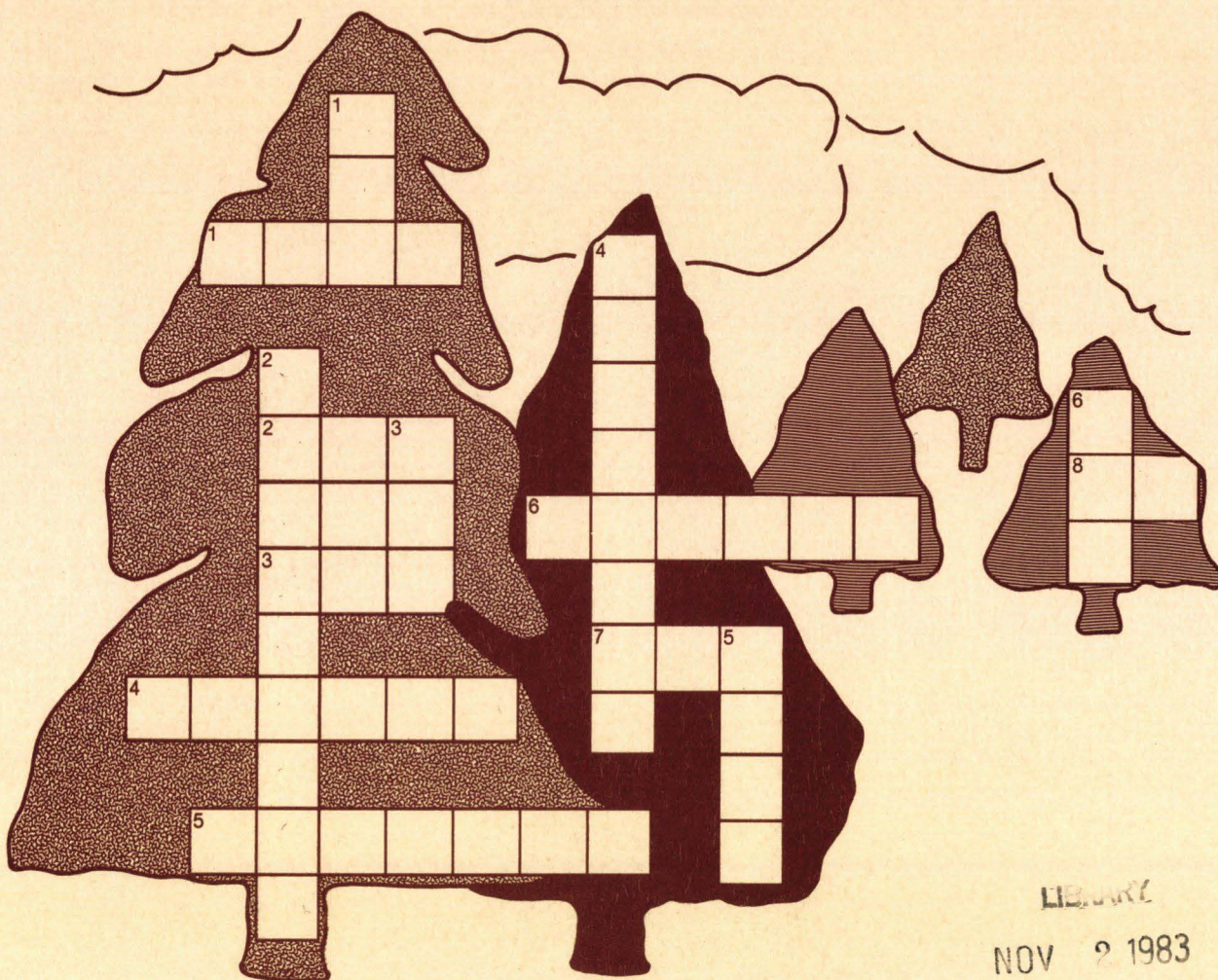
Intermountain
Region

Ogden, Utah



Forest Insect and Disease Conditions

Intermountain Region 1982



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ON

COVER STORY

The Forest Pest Management Puzzle

ACROSS

1. Forest nuisance.
2. Integrated Pest Management (abbr.).
3. Number of National Forests in the Intermountain Region currently experiencing infestations of the mountain pine beetle.
4. Bark _____. A group of insects which kill trees by girdling.
5. Large aspen _____, currently defoliating aspen on the Dixie NF.
6. The correct term for a "bug."
7. Another term for decay.
8. Supervisor's Office (abbr.).

DOWN

1. Genus to which pine engraver beetle belongs. Often used as a common name.
2. Disease which causes more losses in conifer stands than all other forest pests in the Intermountain Region.
3. Mountain (abbr.).
4. A stem rust on lodgepole pine.
5. Constrains all activity.
6. Western spruce budworm (abbr.).

FOREST INSECT AND DISEASE CONDITIONS

**Intermountain Region
1982**

**compiled by
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State and Private Forestry
USDA Forest Service
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RESUME OF CONDITIONS

Mountain pine beetle continued to be the most significant insect pest in the Intermountain Region. In 1982, approximately four million trees were killed by the beetle. Although beetle activity decreased in southeastern Idaho, populations elsewhere in the Region intensified.

As predicted last year, spruce beetle populations increased in 1982. Over 800 Engelmann spruce trees were killed on the Uinta, Bridger-Teton, Fishlake, and Manti-LaSal National Forests.

Western spruce budworm increased significantly in extent and intensity in Idaho, Utah, and western Wyoming. The budworm defoliation covered approximately 2.5 million acres in 1982.

Pine butterfly defoliated approximately 5,800 acres of ponderosa pine on and around the Boise and Payette National Forests in 1982. Flights of the conspicuous white butterflies were observed throughout central Idaho during late summer.

Defoliation caused by the Douglas-fir tussock moth again increased in 1982. Over 6,400 acres of Douglas-fir were infested in the Owyhee Mountains.

A species of *Dioryctria*, a pyralid moth, killed approximately two million Engelmann spruce seedlings at the Lucky Peak Nursery, Idaho.

Dwarf mistletoes continued to significantly affect growth of their host species throughout the Region. Detection of existing root disease problems in spruce, fir, Douglas-fir, and pine stands is increasing.

The first case of Dutch elm disease in Utah was found in Salt Lake City in 1982. Following a street tree survey, the disease was recorded in Box Elder, Cache, Weber, Davis, and Salt Lake Counties, Utah.

ENTOMOLOGY

Mountain pine beetle, *Dendroctonus ponderosae* Hopkins

The mountain pine beetle outbreak on the Targhee National Forest, Idaho, declined again in 1982. The decline was most dramatic on the Island Park and Teton Basin Ranger Districts. In 1982, an estimated 237,000 lodgepole pine were killed. Major activity occurred on the west side of the Teton Mountains, in the Centennial Mountains, and around Grandview Point in the Big Hole Mountains. Static to declining situations remained on the Dixie, Fishlake, Manti-LaSal, Salmon, and Payette National Forests with a total of approximately 34,000 trees killed in 1982.

Mountain pine beetle infestations throughout the remainder of the lodgepole pine type in southern Idaho, northern Utah, and southwestern Wyoming increased dramatically in 1982. The most severe outbreak again occurred on the Ashley National Forest where 3.5 million trees on 200,000 acres were killed in 1982.

The downward trend in mountain pine beetle activity on the Caribou, Boise, and Sawtooth National Forests was reversed in 1982. Almost twice the number of lodgepole pines were killed on these Forests in 1982 than in 1981. Most notable areas of infestation in Idaho include: Caribou Basin, Morgan Meadow, and McCoy Creek on the Caribou National Forest; Clear Creek east of Cascade, Warm Springs Creek east of Deadwood Reservoir, Fall Creek west of Anderson Creek Reservoir, and around Smith's Ferry on the Boise National Forest; and in the Big Wood River and Warm Springs Creek drainages around Ketchum on the Sawtooth National Forest.

Infestations increased dramatically on the Bridger-Teton and Wasatch-Cache National Forests with 52,000 trees and 107,000 trees killed respectively.

Specific mortality figures, as noted by aerial detection surveys, are found in Table 1 and status of the infestations by State is available in Table 2. Figure 1 delineates major infestations throughout the Region.

Jeffrey pine beetle, *Dendroctonus jeffreyi* Hopkins

Jeffrey pine beetle continued to kill Jeffrey pine in the Toiyabe National Forest in Nevada. Slight increases in tree mortality were observed in Dog Valley and in the East Fork of the Canon River near Grover Hot Springs.

Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopkins

Large-scale infestations of Douglas-fir beetle, experienced in the late 1960's and early to mid-1970's, continued to decline. Heaviest damage was noted on the Weiser Ranger District, Payette National Forest, where tree killing persisted in the Monroe Butte - Hitt Mountain vicinity. Specific mortality figures, as noted by aerial detection surveys, are found in Table 1.

Spruce beetle, *Dendroctonus rufipennis* (Kirby)

Spruce beetle infestations persisted or increased on the Uinta and Manti-LaSal National Forests; approximately 800 trees were killed in 1982. Additional groups of tree mortality were observed on the Bridger-Teton and Fishlake National Forests. Specific mortality figures, as noted by aerial detection surveys, are found in Table 1.

TABLE 1. Number of trees killed by bark beetles as determined by aerial detection survey - Intermountain Region - 1981-1982.

Forest	Mountain Pine Beetle	Trend	Douglas- fir Beetle	Trend	Pine Engraver Beetle	Trend	Spruce Beetle	Trend
Ashley								
1981	322,365	Up	30	Down	--	N ²	--	N
1982	3,531,289		--		--		--	
Boise								
1981	9,111	Up	795	Down	294	Up	--	N
1982	21,178		290		1,263		--	
Bridger-Teton								
1981	12,870	Up	200	Down	--	N	--	N
1982	52,364		--		--		--	
Caribou								
1981	6,811	Up	158	Down	--	N	27	N
1982	12,964		40		--		--	
Challis ¹								
1981	350	Up	--	N	--	N	--	N
1982	525		--		--		--	
Dixie								
1981	11,830	Down	--	N	--	N	--	N
1982	2,660		--		--		--	
Fishlake								
1981	535	Down	--	N	--	N	--	N
1982	100		--		--		--	
Manti-LaSal								
1981	1,985	Down	--	N	--	N	20	Up
1982	830		--		--		400	
Payette								
1981	29,432	Static	529	Static	--	Up	--	N
1982	30,316		534		217		--	
Salmon								
1981	--	Static	50	Up	54	Up	--	N
1982	34		84		299		--	
Sawtooth								
1981	2,683	Up	157	Down	--	N	--	N
1982	4,097		42		--		--	
Targhee								
1981	713,447	Down	100	Down	--	N	--	N
1982	237,026		--		--		--	
Uinta								
1981	325	Up	30	Static	--	N	450	Down
1982	505		20		--		395	
Wasatch-Cache								
1981	34,320	Up	--	Up	--	N	40	Down
1982	107,316		110		--		--	

¹Only portions of forest surveyed; actual mortality figures are probably considerably higher.

²N - not noted during aerial survey.

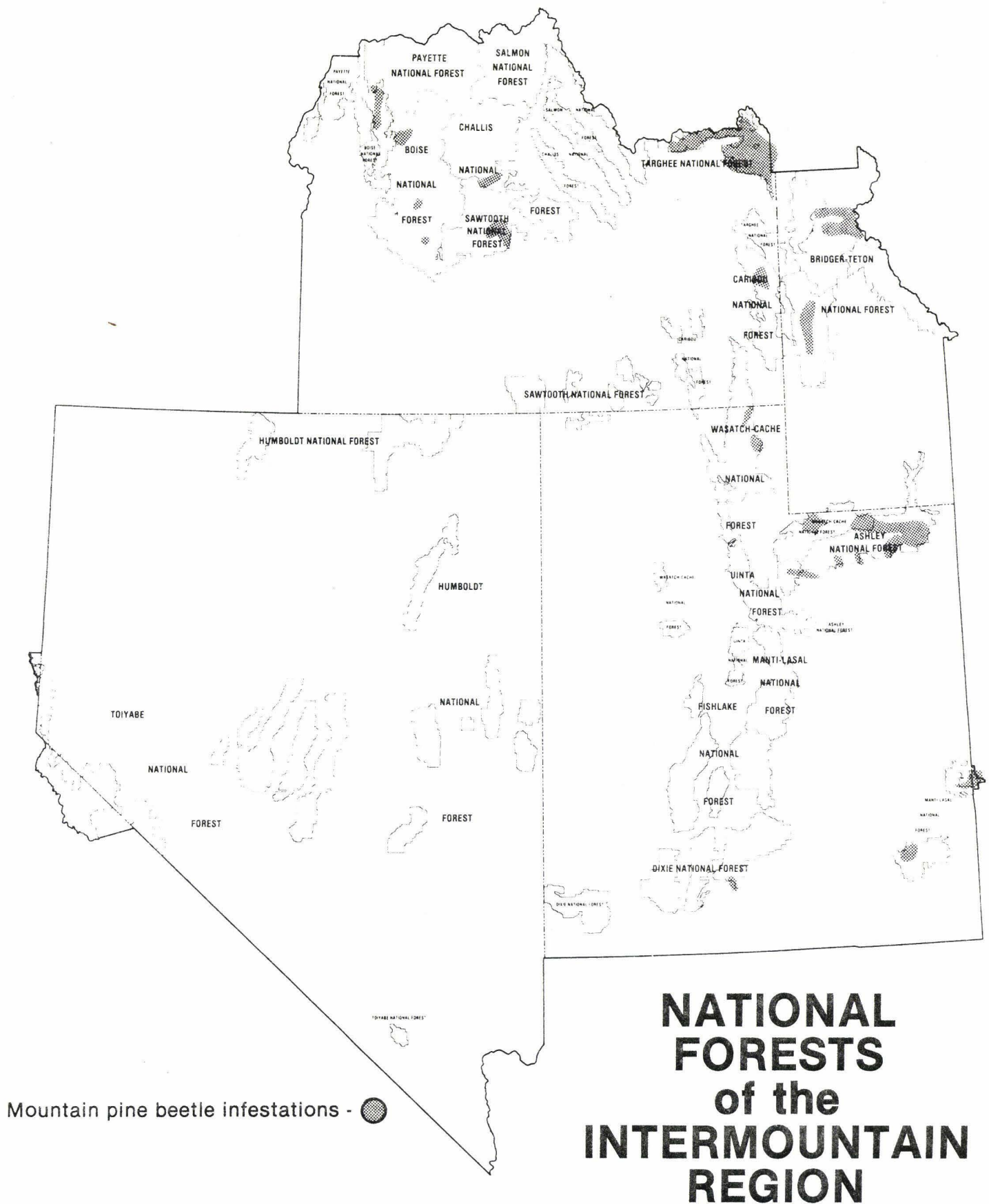
TABLE 2. Status of mountain pine beetle infestations by state - 1982.

IDAHO		
Land Ownership Class	Outbreak Area (Thousand Acres)	Number of Trees (Thousand)
National Forest	475.5	270.16
Other Federal	6.6	3.73
State & Private	56.7	32.2
TOTAL	538.8	306.09

UTAH		
Land Ownership Class	Outbreak Area (Thousand Acres)	Number of Trees (Thousand)
National Forest	246.4	3,627.0
Other Federal	--	--
State & Private	12.5	15.7
TOTAL	258.9	3,642.7

WYOMING		
Land Ownership Class	Outbreak Area (Thousand Acres)	Number of Trees (Thousand)
National Forest	71.9	52.4
Other Federal	--	--
State & Private	--	--
TOTAL	71.9	52.4

FIGURE 1. Mountain pine beetle throughout the Intermountain Region - 1982.



Pine engraver beetle, *Ips pini* (Say)

The recent decline in pine engraver beetle activity was reversed in 1982. On the Boise National Forest, over 1,200 trees were killed. Activity was concentrated in the Boise Basin, Karney Lakes, and Shafer Creek areas. Infestations on the Payette and Salmon National Forests also increased with a total of over 500 trees killed in 1982. Specific mortality figures, as noted by aerial detection surveys, are found in Table 1.

Western spruce budworm, *Choristoneura occidentalis* Freeman

In 1982, western spruce budworm defoliated approximately 2.5 million acres of Douglas-fir, grand fir, and subalpine fir throughout the Region (Figures 2 and 3). Significant increases in both extent and intensity occurred in Utah, western Wyoming, and Idaho.

The infestation expanded on the Payette National Forest. The majority of the defoliation was categorized as moderate to heavy. Stands in the West Mountain area continued to be the most heavily defoliated of any on the Forest. New areas of defoliation were discovered between Grizzly Basin and Pyramid Point, along the Crooked River drainage, and near Brownlee Guard Station on the Weiser Ranger District.

Light defoliation also occurred on the Manti-LaSal National Forest. This was the first year defoliation from western spruce budworm has been recorded on the Forest during aerial detection surveys.

Areas of infestation first noted last year on the Sawtooth and Challis National Forests experienced the greatest increase in budworm activity in the Region. On the Challis National Forest, defoliation was concentrated along the north side of the Salmon River drainage from Yankee Fork to Morgan Creek. The majority of the defoliation on the Sawtooth National Forest was within the South Fork of the Boise River drainage.

Infestations on the Boise, Bridger-Teton, Dixie, Fishlake, Salmon, Targhee, and Wasatch-Cache National Forests expanded. The greatest increase in defoliation on the Boise National Forest occurred on the southern portion of the Forest, primarily on the Idaho City and Boise Ranger Districts. Although the Salmon National Forest infestation expanded, the majority of the defoliation was categorized as light to moderate. In contrast, the defoliation on the Targhee National Forest was largely classified as moderate to heavy.

A further breakdown of budworm-caused defoliation is contained in Figure 3 and Table 3. Table 4 provides the status of the infestations by State. Figure 4 delineates major infestations throughout the Region.

Larch casebearer, *Coleophora laricella* (Hübner)

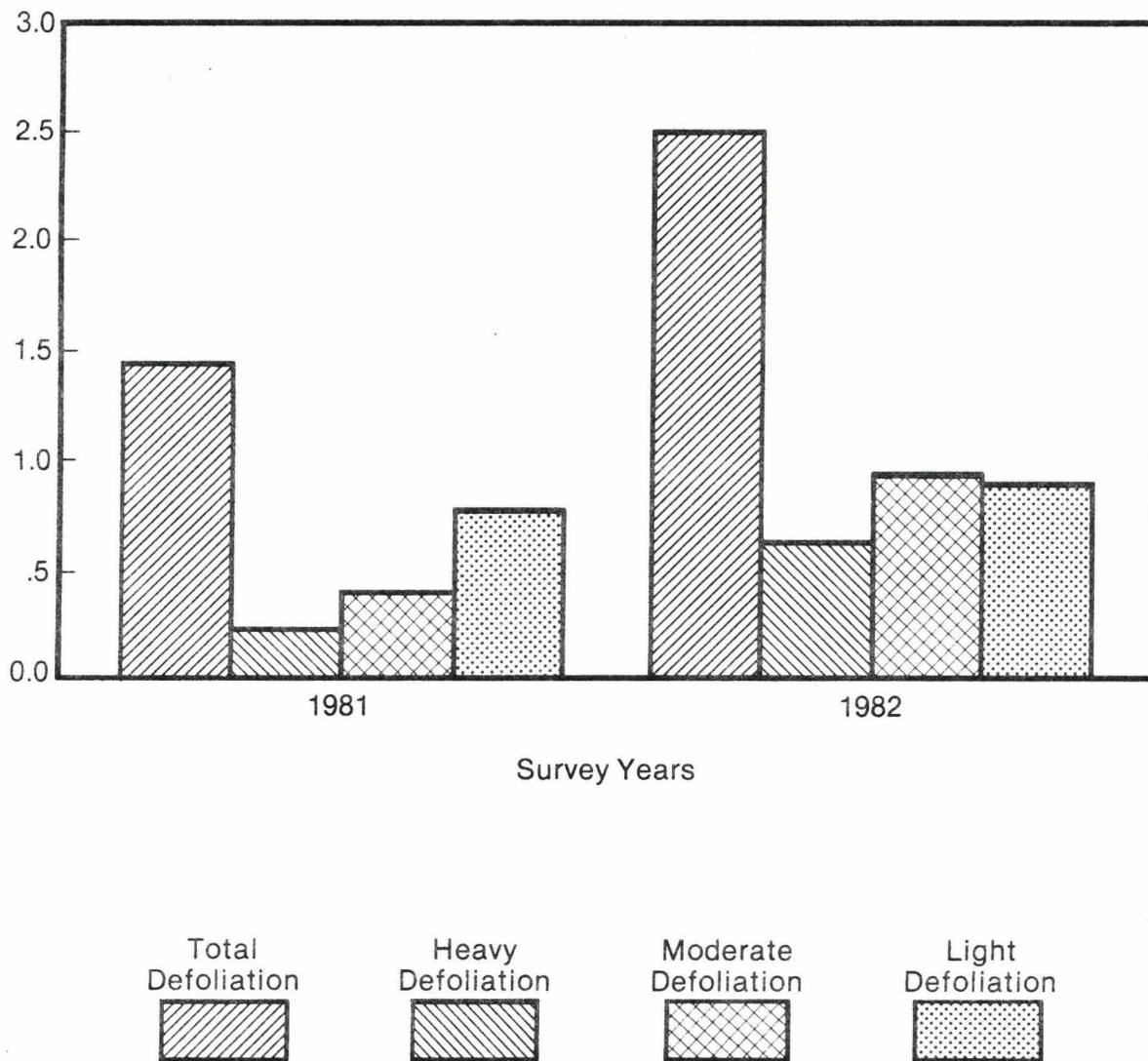
Defoliation of western larch by larch casebearer, prevalent on the Boise and Payette National Forests in 1980 and 1981, declined significantly this year. Only scattered pockets of defoliation were observed.

Pine butterfly, *Neophasia menapia* (Felder & Felder)

As in 1981, numerous butterflies were observed in many ponderosa pine stands on the Boise, Payette, and Salmon National Forests. Although these flights indicate a wide-

FIGURE 2. Millions of acres.

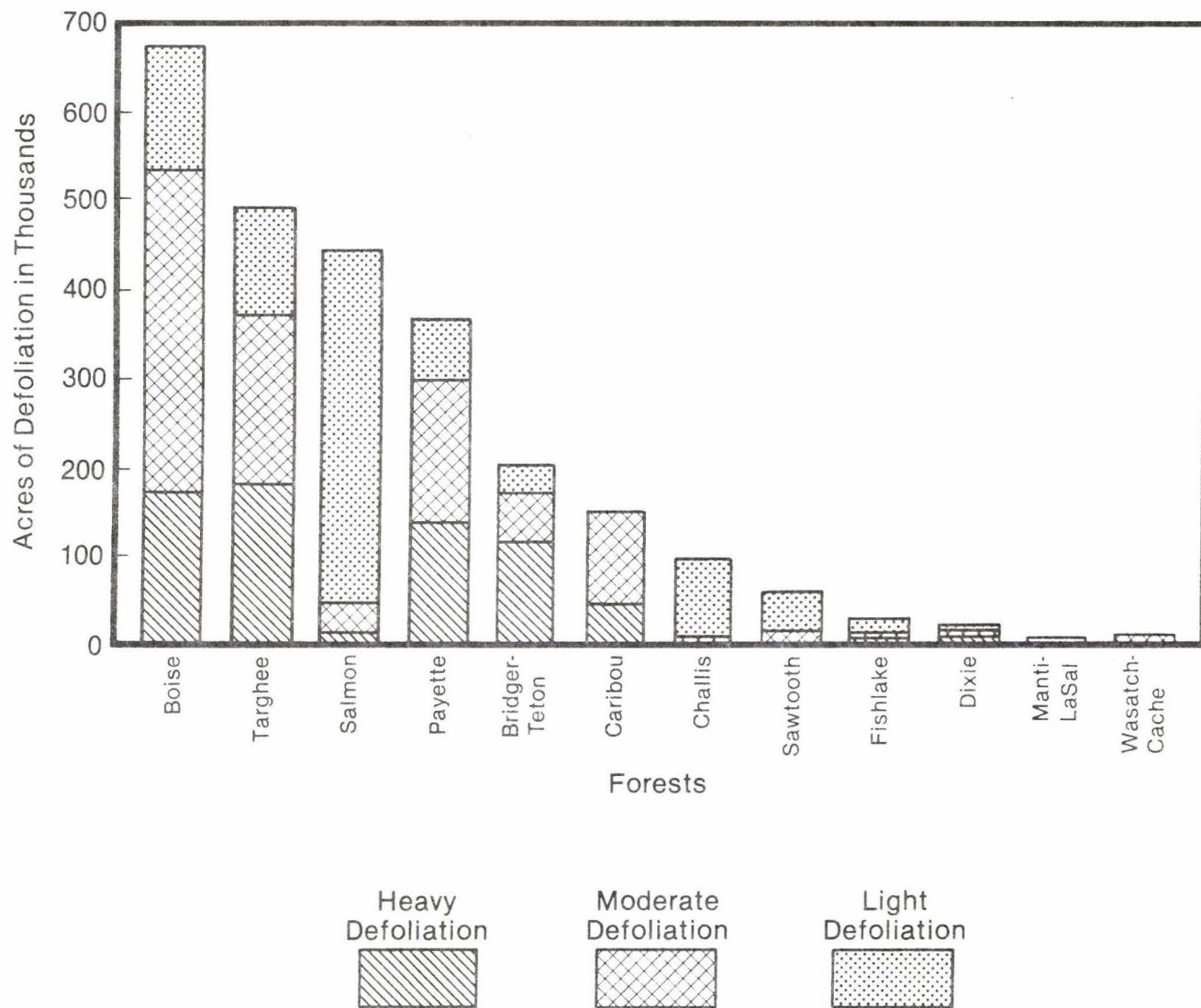
**INTENSITY OF VISIBLE DEFOLIATION BY WESTERN
SPRUCE BUDWORM IN R-4 DURING 1981 AND 1982¹**



¹ As determined by aerial surveys.

FIGURE 3.

VISIBLE DEFOLIATION IN R-4 BY WESTERN SPRUCE BUDWORM



spread infestation, defoliation was limited. Over 5,500 acres were moderately to heavily defoliated around Dry Buck Summit on the Boise National Forest. An additional 300 acres of ponderosa pine were severely defoliated on privately owned lands near Arling Hot Spring east of Cascade Reservoir. Figure 5 delineates this defoliation. Viable egg masses were recovered from ponderosa pine stands on the Boise, Payette, and Salmon National Forests.

Douglas-fir tussock moth, *Orgyia pseudotsugata* McDunnough

Defoliation of Douglas-fir in the Owyhee Mountains expanded in 1982 to 4,000 acres. Moderate to heavy defoliation was observed around South Mountain, Little Sawmill Creek, Dewey Peak, Washington Gulch, and Flint Creek. Defoliation on ornamental trees was reported in Boise, Shoshone, Gooding, and Hailey, Idaho. Table 5 indicates status of the infestation.

The pheromone trap detection survey was expanded this year. Traps were placed on the Payette, Boise, Sawtooth, and Salmon National Forests and State lands around Bellevue, Idaho (Figure 6). Preliminary trap analyses indicate increased Douglas-fir tussock moth activity.

TABLE 3. Areas of defoliation by western spruce budworm as determined by aerial detection survey¹ - Intermountain Region - 1981-1982.

Forest	Defoliation Categories (acres)			
	Light	Moderate	Heavy	Total
Boise	140,902	361,643	171,936	674,481
Bridger-Teton	30,577	61,154	112,115	203,846
Caribou	0	106,817	38,436	145,253
Challis	88,120	6,082	792	94,994
Dixie	5,567	7,766	5,667	19,000
Fishlake	12,890	5,888	3,222	22,000
Manti-LaSal	4,381	0	0	4,381
Payette	68,640	158,586	138,154	365,380
Salmon	396,485	36,946	7,176	440,607
Sawtooth	40,892	10,723	0	51,615
Targhee	116,985	187,659	181,637	486,282
Wasatch-Cache	885	3,639	1,476	6,000

¹Only portions of Forests flown; actual acreage figures may be substantially higher.

TABLE 4. Status of western spruce budworm infestations by state - 1982.

IDAHO

Land Ownership Class	Acres Infested (Thousand Acres)
National Forest	2,144.8
Other Federal	0.4
State & Private	112.8
TOTAL	2,258.0

UTAH

Land Ownership Class	Acres Infested (Thousand Acres)
National Forest	48.3
Other Federal	0.3
State & Private	2.8
TOTAL	51.4

WYOMING

Land Ownership Class	Acres Infested (Thousand Acres)
National Forest	203.8
Other Federal	--
State & Private	--
TOTAL	203.8

Large aspen tortrix, *Choristoneura conflictana* (Walker)

Large aspen tortrix defoliated 200 acres of aspen in the Red Desert area east of Cedar City, Utah, on the Dixie National Forest.

Pyralid moth, *Dioryctria* sp.

A species of *Dioryctria*, possibly *D. abietivorella* (Grote), girdled and killed approximately two million Engelmann spruce seedlings at the Lucky Peak Nursery, Boise National Forest. This may be the first record of damage caused by the pest in a nursery setting. This insect usually feeds on cones of various conifers. Assessments will continue throughout the winter and spring next year to develop management guidelines.

TABLE 5. Status of Douglas-fir tussock moth infestations - 1982.

IDAHO				
Land Ownership Class	Outbreak Area			Total
	Light	(Thousand Acres) Moderate	Heavy	
National Forest	--	--	--	--
Other Federal	1,275	1,275	450	3,000
State & Private	425	425	150	1,000
TOTAL	1,700	1,700	600	4,000

FIGURE 4. Areas of defoliation by western spruce budworm throughout the Intermountain Region - 1982¹.



¹ As determined by aerial detection surveys; includes intermingled state and private land.

FIGURE 5.

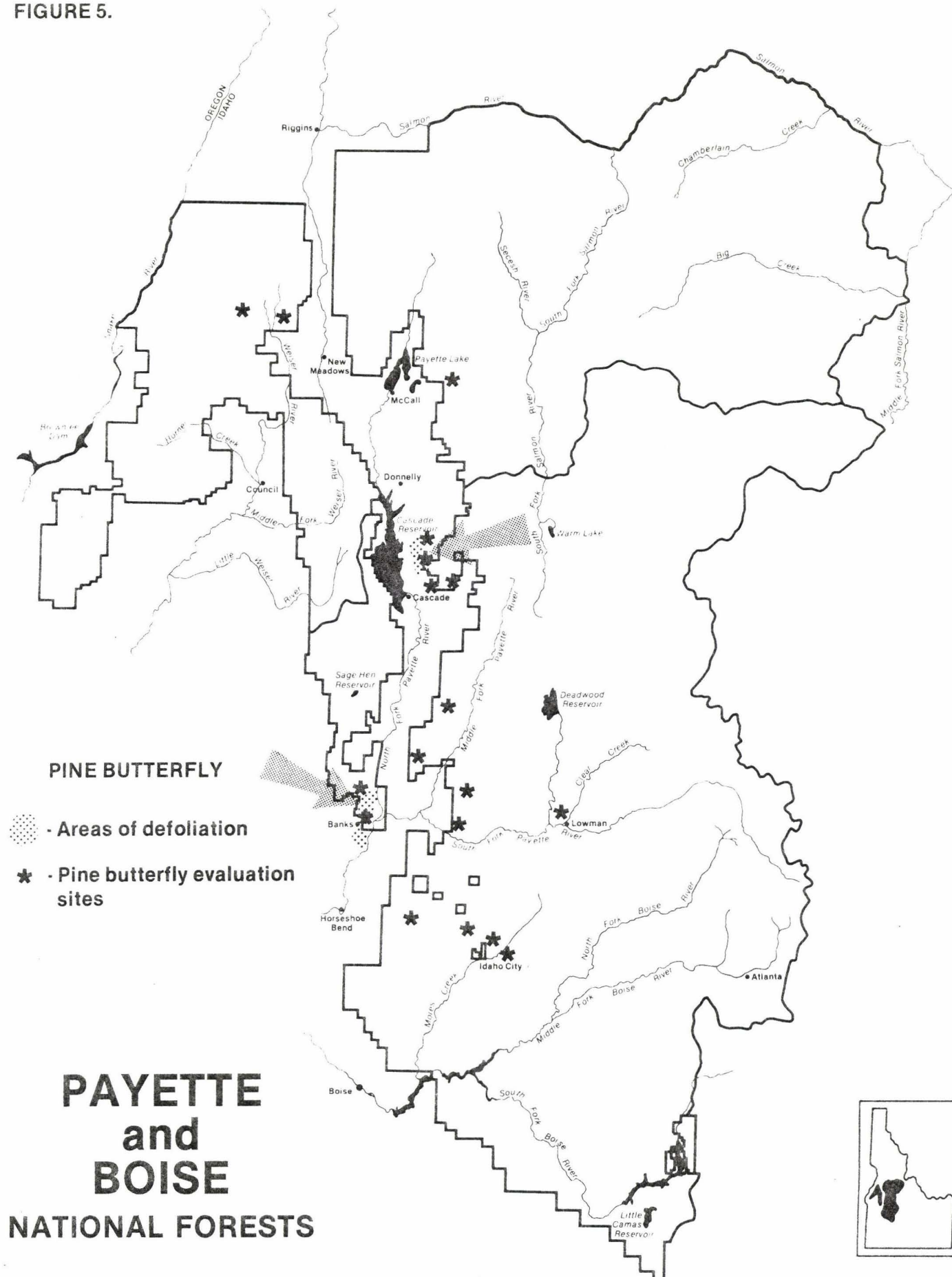
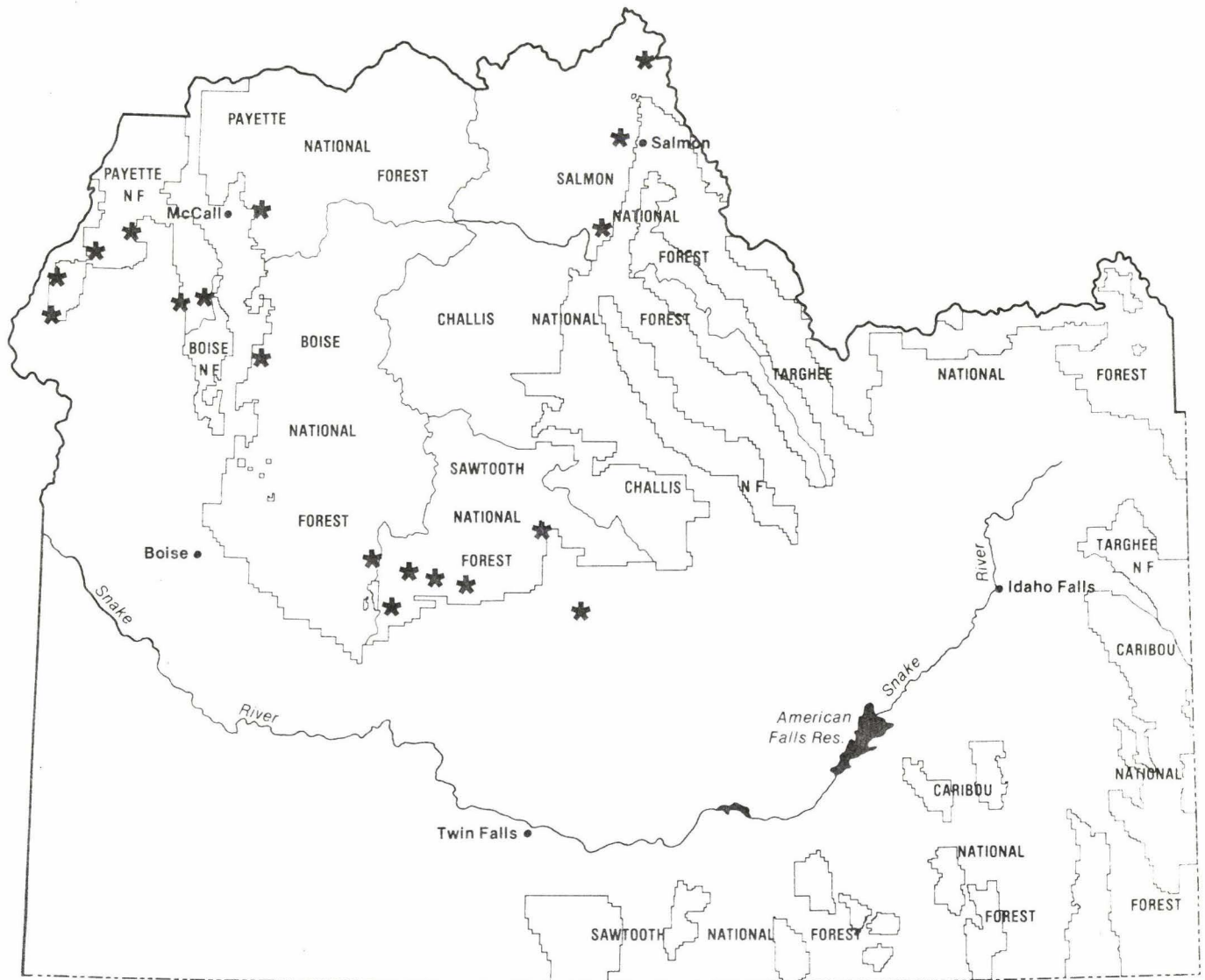


FIGURE 6. Douglas-fir tussock moth evaluation sites - *.



PATHOLOGY

Dwarf mistletoe, *Arceuthobium* spp.

Growth reduction caused by dwarf mistletoes in conifer stands continues to surpass losses attributed to all other forest pests in the Intermountain Region. The status of the dwarf mistletoe parasite, in regards to location, incidence, and stand growth reduction information, has changed slightly for the better since the 1978 estimates. At that time, 60 percent, or 1,300,000 acres of the 2,150,000 commercial acres of lodgepole pine in the Region, was infested to varying degrees with the dwarf mistletoe parasite. Suppression projects in the intermittent 5 years have treated 34,000 acres or 2.7 percent of all dwarf mistletoe-infested lodgepole pine stands.

Comandra rust, *Cronartium comandrae* Peck.

Comandra rust cankers are causing top-kill of mature trees in several severely infected lodgepole pine stands on the Gros Ventre Ranger District of the Bridger-Teton National Forest. Rust-infected trees were also found scattered throughout lodgepole pine stands on the Ashley, Targhee, and Salmon National Forests, as well as the Uinta-Ouray Indian Reservation in Utah.

Cytospora canker, *Cytospora chrysosperma* Pers. ex Fr.

Branch dieback due to this canker was severe on clones of aspen stressed by two consecutive years of defoliation by *Marssonina populi* (Lib.) Magn. on the Wasatch and Bridger-Teton National Forests. Adjacent clones which had resisted *Marssonina* infection were free of *Cytospora* dieback.

Dutch elm disease, *Ceratocystis ulmi* (Buism.) C. Moreau

The first case of Dutch elm disease in Utah was found in Salt Lake City in April by Utah Division of Land and Forestry personnel. This diagnosis was confirmed by culturing the causal agent at the Forest Pest Management Field office in Ogden, Utah.

Although American elms comprise a small portion of the total shade tree population of Utah, they tend to occur in highly visible areas of the major cities. Consequently, a dutch elm disease street tree survey was conducted by personnel of the Utah Division of Lands and Forestry along the Wasatch Front. Suspected samples were cultured for analysis and evaluation by Forest Pest Management.

Dutch elm disease was found in Box Elder, Cache, Weber, Davis, and Salt Lake Counties, Utah. This wide distribution of the disease suggests that it has been active in the state for several years.

In southern Idaho, Dutch elm disease is still present in most municipalities, but losses are minimal because of reduced host material and aggressive tree maintenance programs.

Annosus root rot, *Fomes annosus* (Fr.) Cke.

A ground survey of a spruce-fir stand on the Beaver Ranger District of the Fishlake National Forest indicates *Fomes annosus* infection and/or decay is present in trees

representing 34 percent of the subalpine fir basal area and 2 percent of the Engelmann spruce basal area. Many of the subalpine fir were also infested with *Dryocoetes confusus* Swaine, the western balsam bark beetle.

Shoestring root rot, *Armillaria mellea* (Vahl, ex Fr.) Quel.

Armillaria mellea is causing root rot of Engelmann spruce and aspen in a campground on the Price Ranger District of the Manti-LaSal National Forest. Several infected spruce trees are also infested with *Ips* sp., engraver beetle. Decay of supporting roots has led to blowdown of green trees which endangers recreationists and their property.

Miscellaneous root rots

Widespread spruce and Douglas-fir blowdown was noted during the winter of 1981-82 on the Boise and Payette National Forests. Preliminary evaluation of the root systems of fallen spruce indicate that *Fomes annosus*, *Polyporus tomentosus* Fr., and *Fomes pini* ([Brot.] Fr.) Karst. are presently causing root decay. In Douglas-fir, the decay organisms have not yet been identified.

Pine needle rust, *Coleosporium asterum* (Diet.) Syd.

Pine needle rust occurred through most lodgepole pine plantations on the Ashton Ranger District of the Targhee National Forest. Tiny, tongue-shaped blisters (aecia) on the older needles were very conspicuous this spring. After the current-year flush of new needles, the damage was much less apparent.

Elytroderma needle disease, *Elytroderma deformans* (Weir) Darker

Elytroderma needle disease maintained a high level of infection in a thinned ponderosa pine stand within the Johnson Creek drainage, Boise National Forest. Scattered mortality due to western pine beetle, *Dendroctonus brevicomis* LeConte, was observed in the stand this summer. Greatly increased levels of infection were observed in the Hull Creek, Spring Creek, and Fourth of July drainages on the North Fork Ranger District of the Salmon National Forest.

Meria needle disease, *Meria laricis* Vuill.

Discoloration of western larch by the needle pathogen, *Meria laricis*, prevalent throughout the host type during 1980 and 1981, declined significantly this year. Localized stands of larch with moderate levels of discoloration were, however, detected in the French Creek, Elkhorn Creek, Lick Creek, and Partridge Creek drainages on the Payette National Forest.

SUMMARY

Forest Insect and Disease Conditions Intermountain Region (R-4)¹

Insect	Host	Location	Remarks
<i>Dioryctria</i> sp.	Engelmann spruce	Idaho	Over 2 million seedlings girdled at the Lucky Peak Nursery, Boise NF.
Douglas-fir beetle <i>Dendroctonus pseudotsugae</i> Hopk.	Douglas-fir	Utah, Idaho	Localized pockets of Douglas-fir mortality occurred on Idaho and Utah Forests.
Douglas-fir tussock moth <i>Orygia pseudotsugata</i> (McD.)	Douglas-fir, spruce, true fir	Idaho	Light, moderate, and heavy defoliation occurred on approximately 6,400 acres in the Owyhee Mountains.
Jeffrey pine beetle <i>Dendroctonus jeffreyi</i> Hopk.	Jeffrey pine	Nevada	Increases in tree mortality were observed on the Carson and Bridgeport RD's, Toiyabe NF, around Markleeville, California, and on the east shore of Lake Tahoe.
Larch casebearer <i>Coleophora laricella</i> (Hbn.)	Western larch	Idaho	Declined significantly over the Boise and Payette NF's.
Large aspen tortrix <i>Choristoneura conflictana</i> (Walker)	Aspen	Utah	Approximately 200 acres of aspen defoliation on the Dixie NF.
Mountain pine beetle <i>Dendroctonus ponderosae</i> Hopk.	Lodgepole pine, ponderosa, and other pines	Idaho, Utah, Wyoming	Mountain pine beetle killed approximately four million trees in 1982. With the exception of the Targhee NF, the beetle populations through southern Idaho, northern Utah, and western Wyoming increased dramatically over 1981 levels. Most notable was the infestation on the Ashley NF where mortality increased to 3.5 million trees.
Pine butterfly <i>Neophasia menapia</i> (Felder & Felder)	Ponderosa pine	Idaho	Moderate to heavy defoliation over a small area on the Boise NF and private lands east of Cascade Reservoir.
Pine engraver beetle <i>Ips pini</i> (Say)	Pines	Idaho	Approximately 1,700 trees were killed on the Boise, Payette, and Salmon NF's. This constitutes an upward trend over 1981 levels.
Spruce beetle <i>Dendroctonus rufipennis</i> (Kby.)	Engelmann spruce	Utah	Localized infestations of spruce beetle affected 4,500 acres of overmature spruce on the Bridger-Teton, Fishlake, Manti-LaSal, and Uinta NF's.

¹Includes forests in southern Idaho, Nevada, Utah, and western Wyoming.

SUMMARY

Forest Insect and Disease Conditions Intermountain Region (R-4)¹

Insect	Host	Location	Remarks
Sugar pine tortrix <i>Choristoneura</i> <i>lambertiana</i> (Busck)	Pines	Idaho	New foliage of scattered sapling-and pole-sized pines defoliated over the State.
Western balsam bark beetle <i>Dryocoetes</i> <i>confusus</i> Sw.	Subalpine fir	Nevada, Utah, Wyoming	Fir mortality continued to occur throughout the Region in 1982. This mortality is caused by a complex of root rots and <i>D. confusus</i> .
Western pine beetle <i>Dendroctonus</i> <i>brevicomis</i> LeConte	Ponderosa pine	Idaho, Utah	Low levels throughout Region.
Western pineshoot borer <i>Eucosma</i> <i>sonomana</i> Kearfott	Ponderosa pine	Idaho	Infestations noted throughout Idaho. Heavy populations caused tree leader and lateral mortality in plantations on the Idaho City RD, Boise NF.
Western spruce budworm <i>Choristoneura</i> <i>occidentalis</i> Free.	Firs, Douglas-fir, western larch, spruce	Idaho, Utah, Wyoming	Approximately 2.5 million acres were defoliated Regionwide in 1982. All Forests experienced increased defoliation over 1981. Newly discovered areas of defoliation occurred on the Weiser RD, Payette NF.
Western tussock moth <i>Orgyia vetusta</i> <i>gulosa</i> Hy. Edwards	Willows, <i>Ceanothus</i>	Idaho	Virus-infected populations defoliated over 7,000 acres on the Idaho City and Emmett RD's on the Boise NF.

SUMMARY

Forest Insect and Disease Conditions Intermountain Region (R-4)

Disease	Host	Location	Remarks
Annosus root rot <i>Fomes annosus</i> (Fr.) Cke.	Ponderosa pine, Douglas-fir, spruce, true fir	Idaho, Nevada, Utah, Wyoming	Detections of <i>F. annosus</i> infections increased throughout the Region. The fungus and two other decay organisms were isolated from roots and stems of windthrown spruce in central Idaho.
Comandra rust <i>Cronartium comandrae</i> Peck.	Lodgepole and ponderosa pine	Idaho, Utah, Wyoming	Cankers caused top-kill in lodgepole pine on the Bridger-Teton and Ashley NF's.
Cytospora canker <i>Cytospora chrysosperma</i> Pers. ex Fr.	Aspen	Idaho, Utah	Cankers were found killing branches on trees defoliated for 2 successive years by leaf spot.
Dutch Elm Disease <i>Ceratocystis ulmi</i> (Buism.) C. Moreau	American elm	Utah, Idaho	The first confirmed case in Utah was found on American elm in Salt Lake City in April. A survey being conducted by Utah Division of Lands and Forestry has found infected trees in Box Elder, Cache, Weber, Davis, and Salt Lake Counties. Disease-caused losses in southern Idaho declined as the host material diminished and the municipalities quickly removed infected trees.
Dwarf mistletoes <i>Arceuthobium</i> spp.	Douglas-fir, ponderosa pine, lodgepole pine, Jeffrey pine, western larch	Idaho, Utah, Wyoming, Nevada	These pests continued to have significant impacts on growth and yield of their host species throughout the Region. Dwarf mistletoe suppression projects removed infected residual overstory trees from 9,630 plantation acres throughout the Region.
Fir broom rust <i>Chrysomyxa arctostaphyli</i> Diet.	Firs	Idaho, Utah	Scattered incidence throughout host type.
Indian paint fungus <i>Echinodontium tinctorium</i> Ell. & Ev.	Firs	Idaho, Nevada	Static in old-growth stands.
Ink spot of aspen <i>Sclerotinia bifrans</i> Whetz.	Aspen	Idaho	Caused severe defoliation to one clone on the Targhee NF.
Lodgepole pine needle cast, <i>Lophodermella concolor</i> (Dearn.) Darker	Lodgepole pine	Idaho	Light levels of infection throughout southern Idaho.
Marssonina leaf spot <i>Marssonina populi</i> (Lib.) Magn.	Aspen	Idaho, Utah, Wyoming	Greatly reduced levels of infection from the past 2 years.

SUMMARY

Forest Insect and Disease Conditions Intermountain Region (R-4)

Disease	Host	Location	Remarks
Meria needle disease <i>Meria laricis</i> Vuill.	Western larch	Idaho	Low levels of discoloration and defoliation observed on the Boise and Payette NF's.
Needle cast of ponderosa pine <i>Elytroderma deformans</i> (Weir) Darker	Ponderosa pine	Idaho	Increased levels of infection were observed in southern Idaho.
Needle rust of fir <i>Pucciniastrum</i> spp.	Firs	Idaho	Light levels of infection in southwestern Idaho.
Pine needle rust <i>Coleosporium asterum</i> (Diet.) Syd.	Lodgepole pine	Idaho	High levels of infection found in host type plantations on the Targhee NF.
Red-brown root & butt rot, <i>Polyporus tomentosus</i> Fr.	Firs, pines, Douglas-fir, and spruce	Idaho, Utah, Wyoming	Isolated, along with <i>Fomes annosus</i> , from roots and butts of windthrown spruce in southwest Idaho.
Red ring rot <i>Fomes pini</i> ([Brot.] Fr.) Karts.	Firs, pines, Douglas-fir, spruce, western larch	Idaho, Utah, Wyoming	Isolated, along with <i>Fomes annosus</i> , from roots and butts of windthrown spruce in southwest Idaho.
Rhabdocline needle cast, <i>Phabdocline pseudotsugae</i> Syd.	Douglas-fir	Idaho	Light levels of infection throughout southern Idaho.
Shoestring root rot <i>Armillaria mellea</i> (Vahl. ex Fr.) Quel.	Subalpine fir, Engelmann spruce	Utah	This fungus was found killing subalpine fir and Engelmann spruce on the Manti-LaSal and Fishlake NF's.
Spruce broom rust <i>Melampsorella caryophyllacearum</i> Schroet.	Spruce	Idaho, Utah, Wyoming	Scattered incidence throughout host type.
Stalactiform rust <i>Cronartium coleosporioides</i> Arth.	Lodgepole pine	Idaho	Scattered throughout host type in south-central Idaho.
Western gall rust <i>Endocronartium harknessii</i> (J. P. More) Y. Hiratsuka	Lodgepole and ponderosa pine	Idaho, Wyoming, Nevada, Utah	Static in host type.

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FOREST PEST MANAGEMENT ACTIVITIES

In 1982, Forest Pest Management provided diverse technical assistance to both public and private land managers.

All National Forests in the Region received assistance and review of their land management planning efforts. Emphasis was placed on management concerns; past, present, and future pest conditions; impact projections; and prescription development. Pest management is addressed in each National Forest land management plan now being developed.

The National Environmental Policy Act requires that major land management actions on all Federal lands be developed by an interdisciplinary team. Representatives of Forest Pest Management were consulted in over 30 of these interdisciplinary team efforts in 1982. Most of these projects recognized and handled existing pest problems or minimized potential problems through the project planning process.

Over 50 public inquiries, both individual and corporate, were addressed by the staff group during the year. As several of these inquiries attracted more attention, both news releases and television interviews were conducted.

Aerial surveys were used to detect and monitor pest conditions over approximately 10 million acres of public and private lands in the Intermountain Region. Land managers also submitted over 40 individual reports of pest conditions.

Over 40 other pest evaluations were conducted by Forest Pest Management in 1982. Some of the more notable assessments include population trend evaluations for Douglas-fir tussock moth, pine butterfly, western spruce budworm, western tussock moth, mountain pine beetle and spruce beetle, and impact assessment of western spruce budworm defoliation. Stands on the Ashley, Payette, Targhee, and Wasatch National Forests were rated for their susceptibility to mountain pine beetle attack. Pests associated with Douglas-fir and Engelmann spruce blowdown or nursery seedling mortality were identified and evaluated. Additionally, areas proposed for pre-suppression or suppression activities for dwarf mistletoes, root diseases, mountain pine beetle, spruce beetle, and western pine beetle were evaluated.

Insect and disease recognition training was provided to 74 technicians or temporary employees on seven National Forests and two Bureau of Land Management Districts to help them gather and use pest data collected through stand examination. One-day workshops on the latest forest insect and disease management strategies were presented to 98 permanent employees on six National Forests and three Bureau of Land Management Districts. Sixty-nine recreation managers on five National Forests were trained in recognition and identification of hazardous trees.

Two pesticide-use training sessions were conducted in 1982. These two-day sessions instructed National Forest, Bureau of Land Management, and State forestry personnel on the types and use of available chemicals registered for forest application, the general biology of major forest pests, and the safe handling and disposal of pesticides. Each session concluded with a State-sponsored test that led to a pesticide applicator's certificate for 58 participants.

Integrated pest management awareness training was incorporated into the agenda of Ranger-staff meetings on five National Forests. The specialized presentations addressed integrated pest management, the Forest Pest Management program and budgeting process, and expected results of pest suppression projects.

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ANSWERS TO COVER PUZZLE

ACROSS

1. Pest
2. IPM
3. Ten
4. Beetle
5. Tortrix
6. Insect
7. Rot
8. SO

DOWN

1. *Ips*
2. Mistletoe
3. Mtn
4. Comandra
5. Time
6. WSB